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Bernard et al.

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[54] **LOCAL AREA NETWORK WITH OPTICAL TRANSMISSION**

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[30] **Foreign Application Priority Data**

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[52] U.S. Cl. **359/118; 359/120; 359/121**

[58] Field of Search **359/118, 119, 359/120, 121, 125, 173; 370/85.5**

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,781,427	11/1988	Husbands et al.	359/173
4,947,389	8/1990	Eng et al.	370/85.5
5,221,983	6/1993	Wagner	359/118
5,301,050	4/1994	Czerwicz et al.	359/125

FOREIGN PATENT DOCUMENTS

2175774	12/1986	United Kingdom	359/119
2224901	5/1990	United Kingdom	359/120

OTHER PUBLICATIONS

French Search Report FR 9312225.

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[57] **ABSTRACT**

Each node (N1) of the network is connected to each of the subscriber sets (P1-1) that are associated with the node via a single optical fiber (FP1-1) on two different wavelengths. The node is connected to each of certain other nodes via a single fiber (FN1-2) on a single wavelength. In the node, the electrical signals are supplied by two optical receivers (2, 6) and are transmitted via amplifiers (8, 10) to a single transmitter (4). A passive directional coupler (22) and a wavelength separator (20) provide the necessary optical connections. Passive optical dividers (24, 26) form two interfaces with the sets and with the other nodes. The invention is applicable in particular to industrial transmission networks.

9 Claims, 2 Drawing Sheets

